

APPLICANT(S): SHAHAR, Arie  
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### AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer claims indicated as cancelled. The following Listing of Claims is intended to replace all prior versions and or listings of claims in the application:

#### LISTING OF CLAIMS

1. (Currently Amended) An all-optical data compression system comprising:
  - a) an input encoding unit having at least one input for receiving [[a]] an input data channel;
  - b) an output decoding unit having at least one output for providing [[a]] an output data channel; and
  - c) a radiation guide for carrying encoded optical data signals from said encoding unit to said decoding unit, ~~and~~
  - d) wherein said encoded optical data signals are in a form of a train of optical pulses equally separated by a time interval and having relative phase shifts between adjacent pulses~~[[.]].~~

wherein said decoding unit includes an array of summing gates having first and second inputs, and wherein said first and second inputs of said summing gates produce a relative time delay that is equal to said time interval.
2. (Currently Amended) The system of claim 1 wherein said relative phase shifts are in the range between [[0]] zero and integral number an integer multiple of  $2\pi$  radians.
3. (Cancelled) ~~The system of claim 1 wherein said decoding unit includes an array of summing gates having first and second inputs.~~
4. (Currently Amended) The system of claim [[3]] 1 wherein said summing gates are connected to a dividing device.

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5. (Cancelled) ~~The system of claim 3 wherein said first and second inputs of said summing gates produce a relative time delay that is equal to said time interval.~~

6. (Currently Amended) The system of claim ~~[[4]]~~ 1 wherein said first and second inputs of said summing gates produce relative phase shifts that are equal to said relative phase shifts between adjacent pulses of said train of optical pulses.

7. (Currently Amended) The system of claim 1 wherein said ~~one~~ output of said decoding unit produces ~~multiple levels signals~~ a multiple-level signal.

8. (Currently Amended) The system of claim ~~[[1]]~~ 7 wherein said ~~one~~ output of said decoding unit produces the highest level of said ~~multiple levels~~ multiple-level signal when ~~[[the]]~~ a relative phase shift between the first and the second inputs of a summing gate of said decoding unit is equal to one of said relative phase shifts between adjacent pulses of said train of optical pulses.

9. (Currently Amended) The system of claim 1 wherein said time interval is equal to ~~integral an~~ integer number of time slots of said encoded optical data signal.

10. (Currently Amended) The system of claim ~~[[7]]~~ 6 wherein said relative phase shifts between the first and second inputs of said summing gates are selected to produce said multiple-level ~~levels~~ signal such that their the amplitudes of said multiple-level signal are equally spaced.

11. (Currently Amended) The system of claim 1 wherein said ~~one~~ output of said decoding unit includes a threshold mechanism.

12. (Currently Amended) The system of claim ~~[[8]]~~ 11 wherein said threshold mechanism includes an electronic threshold.

13. (Currently Amended) The system of claim ~~[[8]]~~ 11 wherein said threshold mechanism includes an optical threshold.

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14. (Currently Amended) The system of claim 1 wherein said decoding unit ~~[[is]]~~ comprises a demultiplexing unit.

15. (Currently Amended) The system of claim 1 wherein said encoding unit includes multiple inputs and said decoding ~~units~~ unit includes multiple outputs.

16. (Currently Amended) The system of claim 1 wherein said encoding unit includes one input and said decoding ~~units~~ unit includes one output.

17. (Currently Amended) The system of claim ~~[[1]]~~ 15 wherein said encoding unit receives multiple data channels by multiple of said inputs and encodes said data channels into a single signal of said encoded optical data signals.

18. (Currently Amended) The system of claim ~~[[12]]~~ 17 wherein ~~said~~ each of said multiple data channels is received by one of said multiple inputs and is emitted by one of said outputs of said decoding unit.

19. (Currently Amended) The system of claim ~~[[1]]~~ 16 wherein said encoding unit receives a single data channel by said one ~~inputs~~ input and encodes said data channels into a single signal of said encoded optical data signals.

20. (Currently Amended) The system of claim ~~[[16]]~~ 9 wherein ~~said~~ the number of time slots reserved for the pulses in said encoded optical data signal is smaller than the number of time slots reserved for said data channel.